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NASA TECH BRIEF

Manned Spacecraft Center

Dual-Channel Circuit Conditions/Amplifies Transducers' Inputs and Outputs

A relatively inexpensive conditioning and amplifying circuit for the inputs and outputs of transducers has been developed (Fig. 1). It includes two data channels and one shared precision power supply installed on a single 11.4 cm (4.5-in.)-square circuit card. Each channel consists of: a bridge-completion section where one-quarter, one-half, or full bridges can be connected (Fig. 2); a balancing circuit; a relay-actuated shunt calibration circuit; a temperature stabilized, low-drift amplifier; and an output amplifier with adjustable gain control.

With ±15V power supplied to the amplifier, the available signal output is ±12V. Without additional frequency compensation, the amplifier is flat (within 5%) to 10 kHz. The excitation power supply on the card powers both transducers and is adjustable from 0 to 7V. An excitation of between 7 and 14V can be achieved by rewiring the regulator circuit. This excitation is fully regulated and protected from overload.

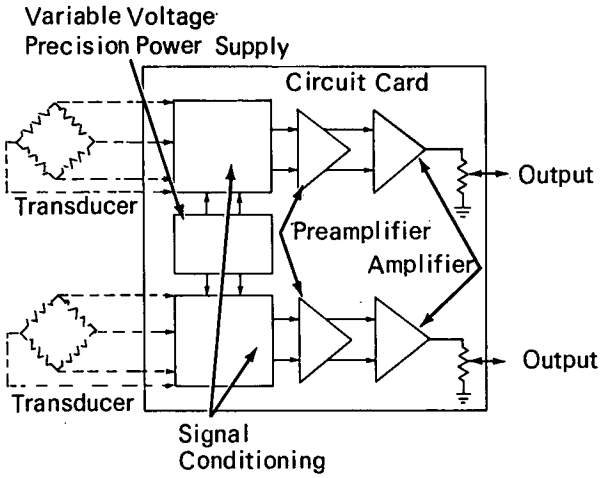

Figure 1. Schematic of the Circuit

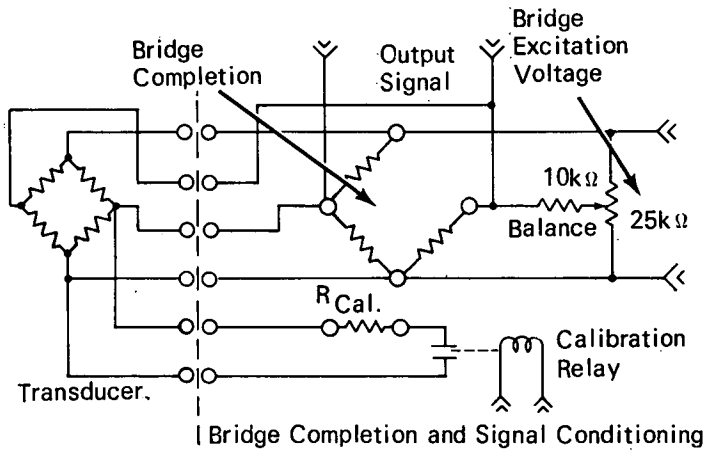

Figure 2. Schematic of Bridge– Completion and Signal-Conditioning Units (There are two of each)

The unit is compact and is suitable for most tests where low-noise and high-gain signal processing is required.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
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Reference: TSP71-10069

(continued overleaf)

Patent status:

No patent action is contemplated by NASA.

Source: K. M. Murphy of
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